DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-012802
Date Inspected: 18-Mar-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 630
OSM Departure Time: 1500
Location: Job Site

CWI Name: See Below

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Orthotropic Box Girders (OBG)

Summary of Items Observed:

Quality Assurance inspector (QA) Michael Foerder was at the American Bridge/Flour (ABF) job site at Yerba Buena Island in California between the times noted above in order to monitor Quality Control functions and the in process work being performed by ABF personnel. The following items were observed:

1. OBG Field Splice 2E/3E A1-5 (Deck Plate) in process welding of fill passes
2. OBG Field Splice 2E/3E A5 (Deck Plate) Linear Indication repair
3. OBG Field Splice 1E/2E B-1 Backgouge/ in process welding of second side

Field Splice 2E/3E Face A-1, A-2, A-3

The QA inspector periodically observed the in process Submerged Arc Welding (SAW) being performed by ABF welding personnel Jordan Hazalaar for field splice welds designated 1E/2E-A1, A2 and A3. The QC inspector Tom Pascualone and Jim Cunningham were noted to be present at different intervals in order to monitor the progress and ensure the welding was within the established Welding Procedure Specification (WPS) noted as ABF-WPS-D1.5-4042B-1. The preheat and interpass temperature was verified by the QA inspector to be greater than 65° Celsius (C) and the parameters were verified to be 565 amps, 32.5 volts and a measured travel speed of 380mm/min. The welder is in the process of placing the fill passes at this time. The work progressed throughout the morning shift and just prior to the lunch break the welder was noted to be placing the cover passes. The work appeared to be progressing in general conformance with the contract documents.

Field Splice 2E/3E Face A-4, A-5 SAW

The QA inspector periodically observed the in process Submerged Arc Welding (SAW) being performed by ABF

welding personnel Mitch Sittinger for field splice welds designated 1E/2E-A4 and A-5 with the exception of the last 1.5M of A-5. This area was noted to be where the linear indication was noted the previous day and is under repair by an alternate welder, see item below for further details. The QC inspector Tom Pascualone was noted to be present in order to monitor the progress and ensure the welding was within the established Welding Procedure Specification (WPS) noted as ABF-WPS-D1.5-4042B-1. The preheat and interpass temperature was verified by the QC and QA inspector to be greater than 65° Celsius (C) and the parameters were verified to be 555 amps, 32.5 volts and a measured travel speed of 375mm/min. The welder is in the process of placing the fill passes at this time. The work progressed throughout the morning shift and just prior to the lunch break the welder was noted to be placing the cover passes. The work appeared to be progressing in general conformance with the contract documents.

Field Splice 2E/3E Face A-5 (Repair)
Just after the start of the shift the QA inspector was provided an advance copy of repair plan (201003-007) by the Welding Quality Control Manager (WQCM) Jim Bowers and QA inspector Rick Bettencourt in which detailed the repair procedures for the linear indication discovered the previous day. Mr. Bettencourt relayed to the QA inspector verbal approval was granted based on the advanced copy by the office of structure construction via message from lead QA inspector Bill Levell. The QA inspector reviewed the repair plan and observed ABF welding personnel James Zhen perform further exploratory grinding in the weld joint in order to establish the end of the indication. QC inspector Tom Pasualone was noted to be present reviewing the work and performing Magnetic Particle (MT) in or to assist in the determination of the end of the indication. A digital photo is included in the body of this report for clarification. The end of the crack was established by MT and the QC and QA inspector concurred the indication present was the weld joint fit line and the welder removed an additional 50 mm per AWS code requirements and the QC and QA inspectors performed MT in order to confirm no indications were present.
The welder proceeded to perform Shielded Metal Arc Welding (SMAW) utilizing E7018 H4R electrodes in accordance with the WPS noted as ABF-WPS-D1.5-D1000-Repair Rev 2. The amperage was verified to be 120 DC and the welder was observed performing proper cleaning between passes with the QC inspector present to insure adherence to the WPS and the pre heat requirements of 65º C. The work progressed throughout the balance of the morning, appeared to be progressing in general compliance with contract documents and was completed just prior to the lunch break. The QC inspector relayed to the QA inspector Mr. Sittinger would be placing SAW passes after the lunch break.

Field Splice 1E/2E Face B-1
The QA inspector periodically observed ABF welding personnel Chun Fai Tsui and Huang Jin Quan performing grinding and cleaning of the backgouge and backing bar removal of the second side of the weld. QC inspector Mike Johnson was noted to be present with QC inspector Tom Pascaulone relieving Mr. Johnson in order to perform Magnetic Particle Testing (MT) for the completed backgouge prior to initiating welding of the second side. The QC inspector performed the MT with minor indications noted for removal by further grinding and the testing was performed again with no rejectable indications noted by QC. The QA inspector performed an informational only MT of roughly 10% of the weld joint with no rejectable indications noted at the time of review. QC inspector Mike Johnson returned and verified the welding parameters for the Flux Cored Arc Welding (FCAW) process to be in accordance with the WPS noted as ABF-WPS-D15-3040B-3 prior to initializing the welding of the joint. Mr. Johnson was observed verifying the pre heat and welding parameters in accordance with the WPS during the initial passes of the joint. The QA inspector relayed to the QC inspector it appeared the

welders were not cascading the ends of the weld passes and instead were ending each pass at the same location. This information was relayed to welding foreman Dan Iraci in which Mr. Iraci removed several small passes and demonstrated the technique to the welding personnel. It was noted several areas revealed small slag pockets at the initiation point of the weld and this information was relayed to the welders by Mr. Iraci also. This area was covered by other QA personnel for the balance of this date.

Summary of Conversations:

As noted above in summary of items observed.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916)813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Foerder,Mike	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer